



Aviation Structural Mechanic (H& S) 3 & 2

DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Nonfederal government personnel wanting a copy of this document
must use the purchasing instructions on the inside cover.

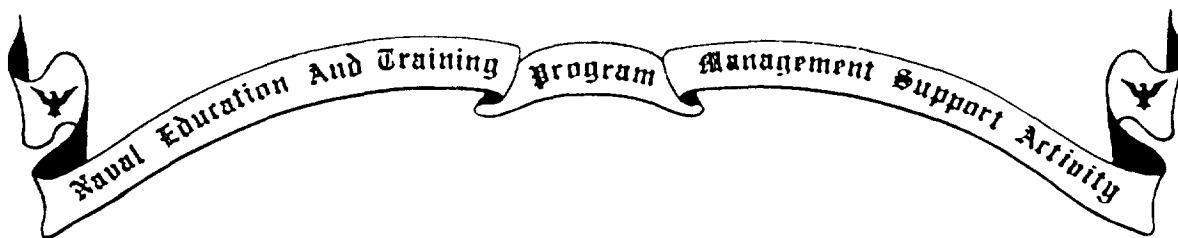


0502LP4773900

Although the words “he,” “him,” and “his” are used sparingly in this manual to enhance communication, they are not intended to be gender driven nor to affront or discriminate against anyone reading this text.

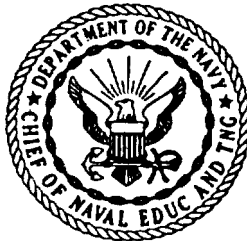
DISTRIBUTION STATEMENT A: Approved for public release; distribution is unlimited.

Nonfederal government personnel wanting a copy of this document must write to Superintendent of Documents Government Printing Office, Washington, DC 20402 OR Commanding Officer, Naval Publications and Forms Directorate, Navy Aviation Supply Office, 5801 Labor Avenue, Philadelphia, PA 19120-5099, Attention: Cash Sales, for price and availability.



AVIATION STRUCTURAL MECHANIC (H & S) 3 & 2

NAVEDTRA 12338



*1993 Edition Prepared by
AMCS Edward W. Biel, USN,
AMHC (AW) Gary L. Humrichouser, USN,
and AMHC Bruce A. Ervin, USN*



PREFACE

This Training Manual (TRAMAN) and the associated Nonresident Training Course (NRTC), NAVEDTRA 82338, form a self-study package that will enable ambitious Aviation Structural Mechanics H or Aviation Structural Mechanics S to help themselves fulfill the requirements of their ratings.

Prior to the development of this manual, studies and surveys were conducted by Naval Air Systems Command (NAVAIR), Naval Education and Training Program Management Support Activity (NETPMSA), and Navy Occupational Development and Analysis Center (NODAC). These studies and surveys revealed a high degree of commonality between the AMH and AMS occupational standards and have resulted in the development of one TRAMAN and one NRTC, *Aviation Structural Mechanic (H&S) 3&2*. One TRAMAN and one NRTC should not imply that the separate ratings should be combined or will be combined in the near future.

Designed for individual study and not formal classroom instruction, this TRAMAN provides subject matter that relates directly to the occupational standards for the AMH and AMS ratings at the E-4 and E-5 paygrades. The NRTC provides the usual method for satisfying the requirements for completing the TRAMAN. With the combining of two ratings into a single TRAMAN, you may come across some terms or phrases that are unfamiliar. If that happens, you should refer to the glossary and TRAMAN references listed in the appendices of this TRAMAN. Recommended reading lists can also be found at the end of the chapters. The occupational standards used as minimum guidelines in the preparation of this TRAMAN can be found in the *Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards*, NAVPERS 18068 (series).

This Training Manual was prepared by the Naval Education and Training Program Management Support Activity, Pensacola, Florida for the Chief of Naval Education and Training.

1993 Edition

**Stock Ordering No.
0502-LP-477-3900**

Published by
NAVAL EDUCATION AND TRAINING PROGRAM
MANAGEMENT SUPPORT ACTIVITY

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON, D.C. : 1993

THE UNITED STATES NAVY

GUARDIAN OF OUR COUNTRY

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas, capable of strong action to preserve the peace or of instant offensive action to win in war.

It is upon the maintenance of this control that our country's glorious future depends; the United States Navy exists to make it so.

WE SERVE WITH HONOR

Tradition, valor, and victory are the Navy's heritage from the past. To these may be added dedication, discipline, and vigilance as the watchwords of the present and the future.

At home or on distant stations as we serve with pride, confident in the respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege. We serve with honor.

THE FUTURE OF THE NAVY

The Navy will always employ new weapons, new techniques, and greater power to protect and defend the United States on the sea, under the sea, and in the air.

Now and in the future, control of the sea gives the United States her greatest advantage for the maintenance of peace and for victory in war.

Mobility, surprise, dispersal, and offensive power are the keynotes of the new Navy. The roots of the Navy lie in a strong belief in the future, in continued dedication to our tasks, and in reflection on our heritage from the past.

Never have our opportunities and our responsibilities been greater.

CONTENTS

CHAPTER	PAGE
1. Aircraft Construction and Materials	1-1
2. Aircraft Hardware and Seals	2-1
3. General Aircraft Maintenance	3-1
4. Hydraulic Contamination and Related Servicing/Test Equipment .	4-1
5. Hose Fabrication and Maintenance	5-1
6. Tubing Fabrication and Maintenance	6-1
7. Basic Hydraulic/Pneumatic and Emergency Power Systems	7-1
8. Basic Actuating Systems	8-1
9. Fixed-Wing Flight Control Systems	9-1
10. Rotary-Wing Flight Control Systems	10-1
11. Aircraft Wheels, Tires, and Tubes	11-1
12. Landing Gear, Brakes, and Hydraulic Utility Systems	12-1
13. Aircraft Metallic Repair	13-1
14. Aircraft Nonmetallic Repair	14-1
15. Nondestructive Inspections, Welding, and Heat Treatment	15-1
APPENDIX	
I. Glossary	AI-1
II. References Used to Develop the TRAMAN	AII- 1
INDEX	INDEX-1

CREDITS

The following are trademarks used in this training manual.

Teflon® and Kevlar® are registered trademarks of E.I. DuPont DeNemours and Company. Teflon® is DuPont's registered trademark for its fluorocarbon resin. Kelvar® is DuPont's registered trademark for its structural grade fiber.